

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A pair of adjacent components from a containment system for fluids at pressures in excess of 15,000 psi, providing a seal between the adjacent components of like material without the need for an insert therebetween, the adjacent components being aligned along a coupling axis, the pair of adjacent components comprising:

a tapered female mouth integrally formed on one of the adjacent components, the tapered female mouth having a female mating portion; and

a tapered male mouth integrally formed on the other of the adjacent components, the tapered male mouth having a male mating portion sized to contact the female mating portion; wherein:

one of the male and female mating portions has a substantially linear cross-sectional profile, the linear cross-sectional profile being angled between 40 and 68 degrees from the coupling axis; and

the other of the male and female mating portions has a convex, curved cross-sectional profile, the curved cross-sectional profile contacting the linear cross-sectional profile in a substantially circular seal, the contact engagement of the male and female portions substantially reducing relative motion between the portions during system operation.

2. (Previously Presented) The pair of adjacent components of claim 1 wherein the linear cross-sectional profile is on the tapered female mouth and the curved cross-sectional profile is on the tapered male mouth.

3. (Previously Presented) The pair of adjacent components of claim 1 wherein the linear cross-sectional profile is angled between 50 and 59 degrees from the coupling axis.

4. (Previously Presented) The pair of adjacent components of claim 1 wherein the linear cross-sectional profile is angled approximately 54 degrees from the coupling axis.

5. (Previously Presented) The pair of adjacent components of claim 1 wherein the curved cross-sectional profile is substantially arcuately shaped.

6. (Previously Presented) The pair of adjacent components of claim 1 wherein the curved cross-sectional profile is substantially elliptically shaped.

7. (Previously Presented) The pair of adjacent components of claim 1 wherein the tapered female mouth is radially symmetric about the coupling axis.

8. (Previously Presented) The pair of adjacent components of claim 1 wherein the tapered male mouth is radially symmetric about the coupling axis.

9. (Currently Amended) A fitting for sealing a fluid at a pressure greater than or equal to 15,000 psi between the fitting and a vessel, without requiring an insert therebetween, the vessel having a vessel bore extending along a longitudinal axis, the vessel bore terminating in a tapered mouth for engaging the fitting, the tapered mouth having a linear cross-sectional profile and being radially symmetric about the longitudinal axis and comprising a metallic material for contacting the fitting, the fitting comprising:

a fitting bore extending along a radial axis and terminating in a tapered engagement portion, the tapered engagement portion having a convex, curved cross-sectional profile and being radially symmetric about the radial axis, the tapered engagement portion being

sized and shaped to sealingly contact the tapered mouth when the longitudinal axis is aligned with the radial axis and the fitting is urged against the vessel, a contact region between the vessel and the fitting forming a circular seal that is radially symmetric about both the longitudinal axis and the radial axis, the circular seal having a tangential contact angle measuring between 40 and 68 degrees from the longitudinal and radial axes.

10. (Cancelled)

11. (Previously Presented) The fitting of claim 9 wherein the tapered engagement portion has a convex, curved cross-sectional profile for engagement with the tapered mouth having a linear cross-sectional profile, the curved cross-sectional profile being substantially arcuately shaped.

12. (Previously Presented) The fitting of claim 9 wherein the tapered engagement portion has a convex, curved cross-sectional profile for engagement with the tapered mouth having a linear cross-sectional profile, the curved cross-sectional profile being substantially elliptically shaped.

13. (Canceled)

14. (Previously Presented) The fitting of claim 9 wherein the contact angle measures between 50 and 59 degrees from the longitudinal and radial axes.

15. (Currently Amended) ~~The fitting of claim 9~~ A fitting for sealing a fluid at a pressure greater than or equal to 15,000 psi between the fitting and a vessel, without requiring an insert therebetween, the vessel having a vessel bore extending along a longitudinal axis, the vessel bore terminating in a tapered mouth for engaging the fitting, the tapered mouth being radially symmetric about the longitudinal axis and comprising a metallic material for contacting the fitting, the fitting comprising:

a fitting bore extending along a radial axis and terminating in a tapered engagement portion, the tapered engagement portion being radially symmetric about the radial axis, the tapered engagement portion being sized and shaped to sealingly contact the tapered mouth when the longitudinal axis is aligned with the radial axis and the fitting is urged against the vessel, a contact region between the vessel and the fitting forming a circular seal that is radially symmetric about both the longitudinal axis and the radial axis, the circular seal having a tangential contact angle measuring wherein the tangential contact angle measures approximately 54 degrees from the longitudinal and radial axes.

16. (Canceled)

17. (Currently Amended) A vessel formed of a metallic material for containing a fluid at a pressure greater than or equal to 15,000 psi, the vessel being sealed by a fitting of a like-metallic material, without requiring an insert therebetween, the fitting having a first tapered engagement portion for engaging the vessel along a coupling axis, the first tapered engagement portion having a convex, curved cross-sectional profile, the vessel comprising:

a second tapered engagement portion shaped to sealingly contact a tapered mouth on the first tapered engagement portion in a circular seal, the second tapered engagement portion having a linear cross-sectional profile, the circular seal having a tangential contact angle measuring between 40 and 68 degrees from the coupling axis; and

a device for maintaining the first tapered engagement portion in sealing contact with the second tapered engagement portion such that the engagement, the engagement portion shape, and the contact angle combine to substantially reduce relative motion during operation.

18.-21. (Canceled)

22. (Original) The vessel of claim 17 wherein the tangential contact angle is between 50 and 59 degrees from the coupling axis.

23. (Currently Amended) ~~The vessel of claim 17~~ A vessel formed of a metallic material for containing a fluid at a pressure greater than or equal to 15,000 psi, the vessel being sealed by a fitting of a like metallic material, without requiring an insert therebetween, the fitting having a first tapered engagement portion for engaging the vessel along a coupling axis, the vessel comprising:

a second tapered engagement portion shaped to sealingly contact a tapered mouth on the first tapered engagement portion in a circular seal, the circular seal having a tangential contact angle measuring between 40 and 68 degrees from the coupling axis; and

a device for maintaining the first tapered engagement portion in sealing contact with the second tapered engagement portion such that the engagement, the engagement portion shape, and the contact angle combine to substantially reduce relative motion during operation;

wherein the tangential contact angle is approximately 54 degrees from the coupling axis.

24. (Previously Presented) The vessel of claim 17 wherein the second tapered engagement portion is radially symmetric with respect to the coupling axis.

25. (Previously Presented) A method for forming a fluid-tight seal in an ultrahigh pressure fluid containment system, without the need for a gasket or other insert, the method comprising:

providing a first component with a first tapered engagement portion having a linear cross-sectional profile, the first engagement portion being symmetrical about a longitudinal axis of the first component, the linear cross-sectional profile being angled between 40 and 68 degrees from the longitudinal axis;

abutting a second component having a second tapered engagement portion against the first component with the respective tapered engagement portions in contact with each other, the second tapered engagement portion having a curved cross-sectional profile such that the contacting surface between the components is circular having a tangential contact angle measuring between 40 and 68 degrees from the longitudinal axis; and

urging the first and second components against each other such that relative motion between the components is substantially reduced.

26. (Previously Presented) A method for forming a fluid-tight seal in an ultrahigh pressure fluid containment system, without the need for a gasket or other insert, the method comprising:

providing a first component having a first longitudinal bore and a first tapered engagement portion with a linear cross-sectional profile that is symmetrical about a first longitudinal axis and angled between 40 and 68 degrees therefrom;

providing a second component having a second longitudinal bore and a second tapered engagement portion with a curved cross-sectional profile that is symmetrical about a second longitudinal axis, the second component having material properties substantially similar to those of the first component;

abutting the first component against the second component with their longitudinal axes aligned and their tapered engagement portions in contact with each other, such that the contacting surface between the components is circular; and

urging the first and second components against each other to minimize relative motion between the contacting surfaces of the components.